

Primary and secondary pharyngealization in Shiri

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Most varieties of Dargwa (East Caucasian) possess pharyngealization as a syllable-level feature which is realized on vowels and consonants. The range of phonemes that can carry the pharyngealization feature varies across dialects, with some having as few as a single vowel with a pharyngealized variant (Standard Dargwa), and others having all vowels with pharyngealized counterparts (Kubachi).

This phenomenon¹ is also found in Shiri, whose system is rather typical for Dargwa: among vowels, only /a/ and /u/ can be pharyngealized, while consonants that can carry the pharyngealization feature are mainly uvulars (/q/, /qʰ/, /qː/, /ɢ/, /χ/, /χː/). The phonemes /ʔ/ and /ħ/ have a special status in that the syllable in which they are found is always pharyngealized. In fact, /ħ/ can be regarded as the pharyngealized variant of /h/, as seen from the following behaviour of the directional prefix *ha-* ‘up’: *ha-* + *b-ax-* ‘go (ipfv.)’ → *ha-b-ax-* ‘go up (ipfv.)’, but *ha-* + #*q*ʰ- ‘go (pfv.)’ → *ħaq*ʰ- ‘go up (pfv.)’. In this example, pharyngealization spreads from the root consonant *q*ʰ to the preverb *ha-* which transforms to *ħq-*. As for /ʔ/, it can similarly be treated as a pharyngealized variant of the glottal stop /ʔ/, as they are always in complimentary distribution depending on the quality of the neighbouring vowel.

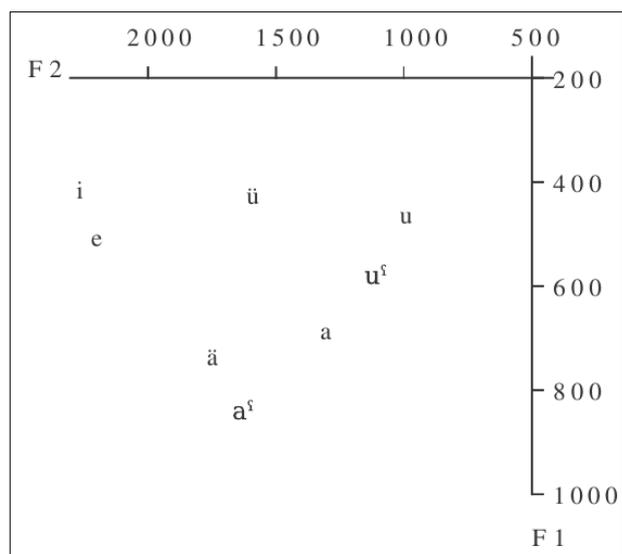
This kind of pharyngealized syllable in Shiri regularly corresponds to pharyngealization in other varieties, e.g.: *ɪ*ʰ*ira* ‘hare’ (cf. Std. *ʒa*ʰ*ra*, Megeb *ʒu*ʰ*ri*, Khuduts *ɪ*ʰ*ura*), *q*ʰ*qb* ‘neck’ (cf. Std. *qa*ʰ*b* etc.), *naq*ʰ ‘hand’ (cf. Std. *na*ʰ*ɟ*, Khuduts *naq*ʰ etc.), *ʒari* ‘pond, standing water’ (cf. Khuduts *ʒa*ʰ*r*, Tanti *ʒa*ʰ*ri*; but see also Std., Megeb *ʒara* without pharyngealization).

However, a feature of Shiri that makes it unique among known Dargwa varieties is the existence of a second type of “pharyngeal colouring” on vowels, which I will provisionally call *secondary pharyngealization* and mark by umlaut (/ä/). This colouring is acoustically similar to “normal” (primary) pharyngealization, but, while the latter produces a centering-like effect, the former leads to fronting. It occurs only on vowels /a/ and /u/. Unlike primary pharyngealization, secondary pharyngealization never spreads to other syllables and does not occur on consonants; it can be regarded as phonemic. Remarkably, the vowels where it occurs are in most other varieties accompanied by the phoneme /ɟ/ or /ħ/, both corresponding to Proto-Dargwa *ɟ. The loss of *ɟ in Shiri is apparently what leads to this “secondary pharyngealization”. Some examples are: *ü* (obl. stem *ä-*) ‘thou’ (cf. Std. *ħu*, *ħe-*; Khuduts *ʒü*, *ʒä-*; Kubachi *u*, *a-*), *üli* ‘eye’ (cf. Std. *ħuli*, Khuduts *ʒul*, Kubachi *uli*), *üzara* ‘mosquito’ (cf. Duakar *ʒizar*), *s:ä* ‘measure for dough’ (cf. Khuduts *sa*ʰ, Tsudakhar *sa*ʰ*h* etc.), *wär* ‘seven’ (cf. Std. *wer*ʰ*el*, Myurego *er*ʰ*al*, Khuduts *we*ʰ*r*, Icar *we*ʰ*r*), *äč:a* ‘she-goat’ (cf. Std. *ʒe*ʒ*a*, Kubachi *ič:a*, Khuduts *ʒeč:a*, Chirag *ʒač:a*), *äq* ‘herd’ (cf. Std. *ħenq*ʰ, Khuduts *ʒaq*ʰ, Icar *aq*ʰ), *ärk*ʰ*w* ‘river’ (cf. Std. *ħerk*ʰ), *mä* ‘brain’ (cf. Std. *me*ħe, Megeb *meh*ʰ*a*, Khuduts *ma*ħ), *hänzi* (pl. *hünzbi*) ‘apple’ (cf. Std. *ʒinc*, Khuduts *ħinc*, Megeb *inc*). An especially important example is the minimal pair *bä* ‘edge’ (cf. Megeb *beh*) and *bq* ‘face’ (cf. Megeb *da*ʰ*h*), which demonstrates that the difference between /a/ and /ä/ is phonemic.

Most native speakers seem conscious of the distinction between primary and secondary pharyngealization. When using the Standard Dargwa spelling, some of them attempt to render it by preceding the pharyngealized vowel by a letter for the phonemes ʔ/ɟ (e.g. *cczIä* for *s:ä*), which is in curious agreement with the origin of these vowels, but does not probably represent any acoustic or phonological reality.

The following chart displays mean F1 and F2 averages for a sample of 108 sounds recorded from a single male speaker:

1 In the practical transcription for Shiri, I mark pharyngealization by tilde under vowels and by the IPA pharyngealization sign /ɟ/ on consonants.



From this graph one can see, first of all, a very clear distinction between /u/, /uʕ/ and /ü/. While the pharyngealized /uʕ/ is centered compared to the plain vowel, and can phonetically be rendered as [oʕ], the secondary /ü/ is strongly fronted, being close to IPA [yʕ].

As for the varieties of /a/, the situation is more complex. Both are somewhat fronted, but /ä/ is more so, acoustically being close to IPA [æʕ] or even [ɛʕ]; /aʕ/ is an open vowel and can be regarded as IPA [ɐʕ].

Crucially, the acoustic data demonstrate that neither /ä/ nor /ü/ can be regarded as ordinary pharyngealized variants of existing vowels. The simplest case is /ü/: its position in the chart cannot correspond to any other plain vowel than /u/; since /u/ already has a pharyngealized variant, we are forced to postulate an additional vowel. As for /ä/, in principle it could be treated as pharyngealized /e/, and indeed, it does correspond to such a vowel in some dialects (cf. Shiri *äla*, Std. *hela* ‘thy’). However, it is acoustically quite far off. Furthermore, the fact that /ä/ and /ü/ share the same pharyngeal feature is demonstrated by their participation in the standard ablaut /a/ → /u/ in the plural, cf. *äq* ‘herd’ → *üq’ri* ‘herds’.

While the exact articulatory nature of secondary pharyngealization is yet to be established, its existence seems rather certain, and does not have any clearly described counterparts in other Dargwa varieties. Typologically, the existence of two kinds of pharyngealization-like features is also unusual. In the talk, I will discuss the acoustic data in more detail, and provide an account of the sound correspondences between Shiri secondary pharyngealized vowels and the sounds in other varieties of Dargwa.